



Phoenix Air Unmanned, LLC
Built by Aviators. Achieving a Higher Standard.

January 26, 2022

U.S. Department of Transportation
Docket Operations
West Building Ground Floor, Room W12-140
1200 New Jersey Avenue, SE.
Washington, DC 20590

Re: Petition for an Exemption to Accompany a SAC EC

Dear Sir or Madam:

Pursuant to 14 C.F.R. Part 11, Phoenix Air Unmanned, LLC. (PAU) hereby applies for a Summary Grant of Exemption from the Federal Aviation Regulations (FARs) identified below to allow Phoenix Air Unmanned, LLC. to operate its SwissDrones SVO 50 V2 with a Special Airworthiness Certificate -- Experimental Category (SAC-EC) and an Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA) for the purposes of research and development (R&D), crew training, familiarization flights and Operational Suitability Evaluations in accordance with 14 C.F.R. §§ 21.191(a) and 21.191(c) respectively. The proposed operations will be conducted in accordance with the operating limitations of an applicable SAC-EC and ATO issued COA. Phoenix Air Unmanned, LLC. respectfully submits this Petition for Exemption as the FAA has previously issued grants of exemption in circumstances similar in all material respects to those presented herein.

Phoenix Air Unmanned, LLC is pursuing a 49 U.S.C. § 44807 exemption for the SwissDrones SVO 50 V2 UAS (Docket No. FAA-2020-0596). The proposed operations under the SAC-EC will support the petitioner in obtaining a 44807 exemption for the SwissDrones SVO 50 V2 UAS.

In support of this Petition for Exemption, Phoenix Air Unmanned, LLC. is submitting the following documents (collectively, "operating documents"):

- Rev 1. Petition Cover Letter
- PAU GOM
- PAU SRM Document
- Concept of Operations (CONOPS)
- SwissDrones Flight Manual & Supporting Documents
- 2019 Xcel Energy Payload Operations Report
- L3Harris Airspace Analysis Briefing
- PAU Air Risk Analysis Summary
- PAU SRM

The operating documents will be submitted on a confidential basis under separate cover pursuant to 14 C.F.R. § 11.35(b), as the operating documents contain confidential commercial and proprietary information. The information contained in this material is not generally available to the public and is protected from release under the Freedom of Information Act, 5 U.S.C. § 552 et seq.



BACKGROUND OF PETITIONER AND DESCRIPTION OF PROPOSED UAS OPERATIONS

PAU has successfully operated, under Part 107, since 2016 with VLOS and BVLOS (waivered) UAS operations in support of its aerial inspection and mapping business. PAU now desires to employ a long range, heavier than the current Part 107 weight limitations of 55lbs., turbine powered helicopter in pursuit of its growing business needs of greater endurance and payload capabilities.

The objective of PAU's proposed flights at Area 1, as described below (pg. 3), is to train on the basic airframe operations and demonstrate and perfect the payload integration. Training will be performed in accordance with the SwissDrones pilot training program. R&D flights will consist of verification and validation of payload mount design, vibration isolation, and optimizing sensor orientation/settings. This all will be accomplished by flying the system and operating under various sun angle conditions, payload configurations / weights and different wind speeds and directions.

The objective of the flights at Area 2, as described below (pg. 4), will be to demonstrate the capabilities of the aircraft-payload system using the same CONOP that represents the flight profile it is intended to be used. PAU plans to meet those objectives by flying over transmission lines while taking pictures during an abbreviated mission profile. The total distance the aircraft flies will be confined to the boundaries depicted below within visual line of sight, and the safe aircraft endurance limit will include a fuel reserve.

The Program Letter and Safety Checklist for the PAU SAC-EC were submitted to Steven Taylor, Aviation Safety Inspector (Manufacturing) in the Atlanta MIDO on January 14, 2022.

The proposed operations and the relief sought in this Petition for Exemption will support essential R&D activities that need to occur before Phoenix Air Unmanned, LLC. can pursue a 44807 exemption.

As discussed more fully in the attached Phoenix Air Unmanned, LLC. Program Letter, the proposed operations will occur in rural, sparsely populated areas (pg. 3-4) in accordance with the requirements of an ATO-issued COA.

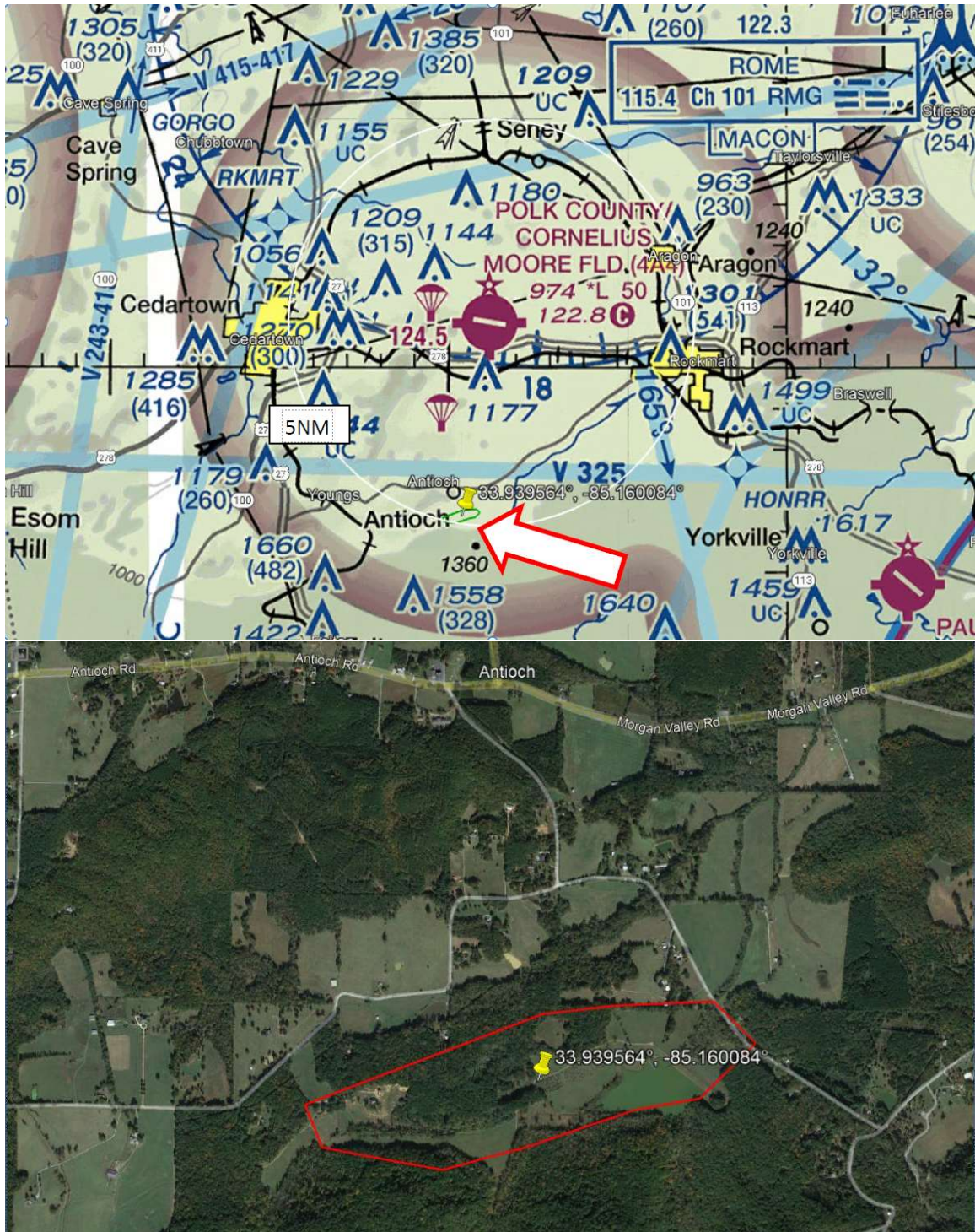
Flights will be conducted under 400' AGL and less than 39 knots within visual line of sight (VLOS) of the Remote Pilot in Command (RPIC), under Visual Flight Rules (VFR) and in Visual Meteorological Conditions (VMC). A visual observer (VO) will be used during all operations to support the RPIC in the identification of hazards to the UAS, personnel, and the application mission. The RPIC will maintain a safety radius surrounding the aircraft during flight operations, including a 500-foot buffer from people, infrastructure and vehicles which are not a part of the Phoenix Air Unmanned, LLC.'s operation.



Area 1: Demo / Familiarization Flight / R&D Testing Site:

Location: Antioch, Georgia, 33°56'20.4"N 85°09'32.3"W

This area consists of private land owner which PAU has permission to conduct training and R&D flights.

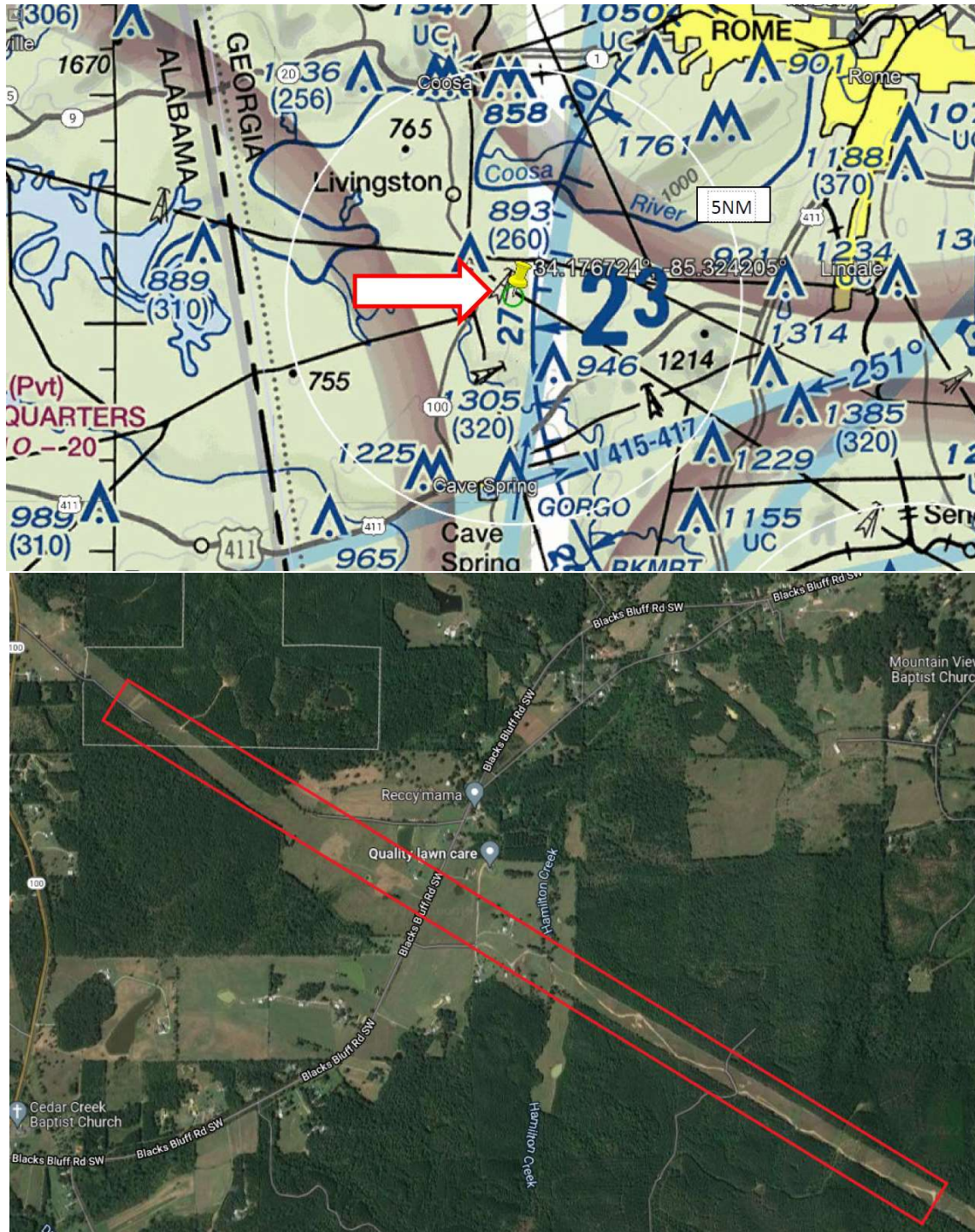




Area 2: Operational Suitability & Evaluation / Demonstration Site:

Location: Cave Spring, Georgia, 34°10'36.1"N 85°19'28.9"W

This proposed flight area is a 230kV circuit owned by a local electric utility company. PAU will have their permission to fly the transmission line and access the right of way. We will not demonstrate BVLOS operations.





In accordance with 14 C.F.R. § 11.81(a), the contact information for Petitioner is as follows:

Principle Business Address:

Phoenix Air Unmanned, LLC.
100 Phoenix Air Drive SW
Cartersville, GA 30120

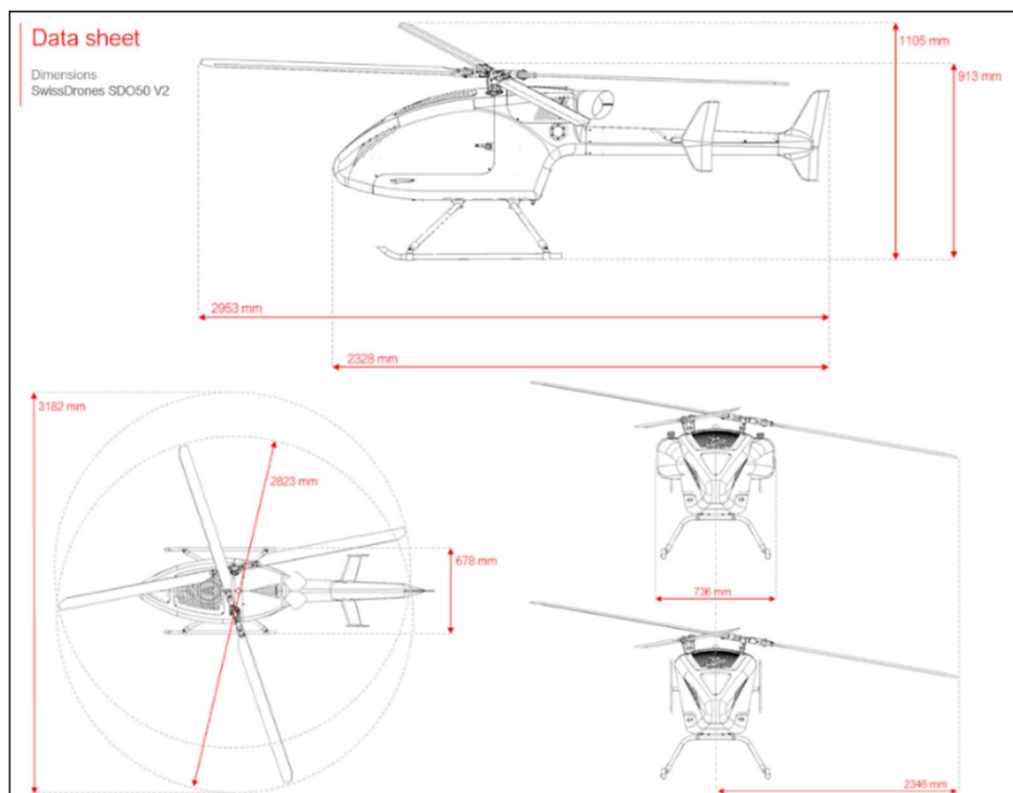
Principle Contact:

William E. Lovett
Managing Director, Phoenix Air Unmanned
Office: 770.387.2000 Ext 255 | Fax: 770.387.4545
wlovett@phoenixair.com | www.phoenixairunmanned.com

DESCRIPTION OF UAS

SDO 50 V2 is a multi-purpose unmanned helicopter system. The design features of the SDO 50 V2 provide superior payload capacity, long endurance, stable flight characteristics, and a high degree of safety features. An integrated autopilot system allows autonomous take-off and landing procedures as well as autonomous flight patterns.

The SDO 50 V2 uses the innovative construction principle of intermeshing rotors. It functions through a set of two rotors turning in opposite directions with each rotor mast mounted at a slight angle to the other so that the blades intermesh without making contact. The arrangement also allows the helicopter to function without a tail rotor, which increases powertrain efficiency and reduces complexity.





REGULATIONS FROM WHICH EXEMPTION IS SOUGHT

Phoenix Air Unmanned, LLC. seeks an exemption from the following provisions of 14 C.F.R. Parts 61 and 91:

FAR

§ 61.3(a)(1)(i)

Requirement for certificates, ratings, and authorizations.

§ 61.113(a)

Private pilot privileges and limitations: Pilot in command.

§ 91.109(a)

Flight instruction; Simulated instrument flight and certain flight tests.

§ 91.119(c)

Minimum safe altitudes: General.

§ 91.121

Altimeter settings.

§ 91.151(b)

Fuel requirements for flight in VFR conditions.

Listed above are the Federal Aviation Regulations (FARs) sections from which an exemption is sought. Below we include the rationale for why an exemption is being requested as well as a brief summary of the operating procedures and safeguards, which are described more fully in the operating documents being submitted under separate cover. The procedures and safeguards described in the operating documents will ensure that the proposed operations can be conducted at a level of safety that is at least equal to that provided by the rule from which exemption is sought.

§ 61.3(a)(1) - Requirement for certificates, ratings, and authorizations.

Phoenix Air Unmanned, LLC. seeks relief from FAR § 61.3(a)(1), which requires that a person serving as a required pilot flight crewmember of a civil aircraft holds a pilot certificate issued under this part and in accordance with § 61.19. Given the unique design and highly automated operation of the PAU UAS, the training and knowledge requirements associated with holding a crewed pilot certificate issued under Part 61 are unnecessary. As described in the Phoenix Air Unmanned, LLC. PAU UAS RPIC Training Syllabus submitted under separate cover, Phoenix



Air Unmanned, LLC. has developed a training program consisting of both ground and flight training appropriate for UAS.

Phoenix Air Unmanned, LLC.'s UAS-specific RPIC training requirements in its training program will ensure that the RPIC has the training and skills necessary to safely operate the UAS and will therefore ensure an equivalent or greater level of safety.

§ 61.113(a) - Private pilot privileges and limitations: Pilot in command.

Phoenix Air Unmanned, LLC. proposes to use only PICs who hold, at a minimum, a part 61 private pilot certificate and a part 67 third-class medical certificate. The petitioner seeks exemption from § 61.113(a), which prohibits any person who holds a private pilot certificate from acting as pilot in command of an aircraft for compensation or hire. The purpose of part 61 is to ensure that the skill and competency of any PIC is appropriate for the airspace in which the PIC will be operating, as well as requiring certifications if the pilot is carrying passengers or cargo for hire.

In Exemption No. 11062 issued to Astraeus Aerial (Docket No. FAA-2014-0352), the FAA determined the unique characteristics of UAS operations outside controlled airspace did not warrant the additional cost and restrictions associated with requiring the PIC to have a commercial pilot certificate. The risks associated with the operation of a UAS are lower than those associated with commercial operations contemplated when part 61 was drafted.

Phoenix Air Unmanned, LLC. will use private pilots to operate the UA for limited commercial operations. The UA are not carrying passengers or third party payloads, are smaller, lighter and slower than manned assets, and require less experience than a commercial pilot to effectively and safely operate.

§ 91.109(a) - Flight instruction; Simulated instrument flight and certain flight tests

Phoenix Air Unmanned, LLC. Seeks exemption from FAR § 91.109(a) Flight instruction; Simulated instrument flight and certain flight tests. The SDO 50 V2, like many UAS, is not equipped with dual controls in its GCS. This aircraft and its safe operation is not intended to require that its pilots be certified with a specific category and class rating. PAU seeks to maintain that it only requires its pilots have at least a Private Pilot License and Part 107 certificate in order to operate its aircraft. Instrument flight is not applicable to the SDO 50 V2.

§ 91.119(c) - Minimum safe altitudes

Phoenix Air Unmanned, LLC. seeks an exemption from FAR § 91.119(c) Minimum safe altitudes, to the extent necessary to allow UAS operations over areas other than congested areas at altitudes lower than those permitted by rule. An equivalent or greater level of safety will be achieved given the remote, rural and controlled locations where the proposed operations will occur.

As described in the operating documents, Phoenix Air Unmanned, LLC.'s UAS is programed to a maximum operating altitude of 400 feet AGL. To the extent an applicable ATO-issued COA designates a lower maximum operating altitude, the altitude requirements of the ATO-issued



COA will be complied with. In the extremely remote and secure environment where Phoenix Air Unmanned, LLC. operations occur, flying at a low altitude increases the safety margin, without posing any increased risk to people or property. Even at low altitudes, Phoenix Air Unmanned, LLC.'s UAS operations will be conducted at a level of safety equal to or greater than that achieved by a larger crewed aircraft performing similar activities at the altitudes required by FAR § 91.119.

§ 91.121 - Altimeter settings

Phoenix Air Unmanned, LLC. also requests an exemption from FAR § 91.121 Altimeter settings, which requires a person operating an aircraft to maintain cruising altitude or flight level by reference to an altimeter that is set to the elevation of the departure airport or barometric pressure. In previously issued Exemptions, the FAA stated that an equivalent level of safety to the requirements of FAR § 91.121 can be achieved in circumstances where the RPIC uses an alternative means for measuring and reporting UA altitude, such as global positioning system (GPS). As discussed in the CONOPS... the UAS relies on GPS altitude (dual redundancy GPS antennas) for altimeter setting.

The RPIC will check the UA altitude reading prior to each takeoff, effectively zeroing the UA's altitude at that point. Consistent with previously granted exemptions, these requirements ensure that an equivalent level of safety will be achieved, and an exemption from the requirements of FAR § 91.121 is therefore appropriate.

§ 91.151(b) - Fuel requirements for flight in VFR conditions

Phoenix Air Unmanned, LLC. seeks an exemption from FAR § 91.151(b) Fuel requirements for flight in VFR conditions, which would otherwise require a 20-minute fuel reserve to be maintained. The FAA has previously determined that a requirement prohibiting the RPIC from beginning a UAS flight unless (considering wind and forecast weather conditions) there was enough available power for UAS to operate for the intended operational time and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater would ensure an equivalent level of safety to the fuel requirements of FAR § 91.151. Phoenix Air Unmanned, LLC. will adhere to the same reserve power requirement and an exemption from FAR § 91.151's fuel requirements for flight in VFR conditions is therefore appropriate.

Phoenix Air Unmanned, LLC. has attempted to identify the appropriate FARs from which an exemption is needed in order to conduct the proposed operations in this Petition for Exemption. To the extent that the FAA determines that Phoenix Air Unmanned, LLC. needs an exemption from other FARs which are not addressed or explicitly named in order to conduct the proposed operations, Phoenix Air Unmanned, LLC. also seeks an exemption from those FARs for the reasons outlined above.



PUBLIC INTEREST

The proposed R&D activities under the SAC-EC will support the ability to conduct future operations designed to supplement or replace existing manned aircraft while also substantially increasing pilot and worker safety. In the context of future infrastructure inspection operations, Phoenix Air Unmanned, LLC.'s approach to efficient, safe operations will help reduce the overall environmental impact of infrastructure inspection. This reduced environmental impact is in the public interest.

The activities conducted under the SAC-EC will help inform the process for acquiring a 44807 exemption for infrastructure inspection operations, which will benefit the aeronautical community as a whole.

Finally, the proposed activities to be conducted under the SAC-EC are also in the public interest because it will improve safety. The proposed operations significantly improve safety and reduce risk by alleviating human exposure to danger and emissions associated with current infrastructure inspection methods, namely, the use of full size fixed-wing aircraft or rotorcraft.

FEDERAL REGISTER SUMMARY

As previously noted, Phoenix Air Unmanned, LLC. believes that good cause exists for not publishing this Petition in the FEDERAL REGISTER.

CONCLUSION

For the foregoing reasons, Phoenix Air Unmanned, LLC. respectfully requests that the FAA grant this Petition for Summary Grant of Exemption. Any questions, or if you needed additional information to support Phoenix Air Unmanned, LLC.'s Petition, please do not hesitate to contact the undersigned.

Should you have any questions, or if you need additional information to support PAU's Petition, please do not hesitate to contact the undersigned.

Sincerely,
A handwritten signature in blue ink, appearing to read "William E. Lovett", with a long horizontal flourish extending to the right.

William E. Lovett
Managing Director